

Amendments to the Claims

This listing of claims will replace all prior version, and listings, of claims in the Application for patent.

1. (Withdrawn) An engineered fibre reinforced cement product including a first major surface to which a carbonation reducing sealer is applied and a second generally opposing major surface to which a carbonation reducing sealer is applied, so as to reduce propensity for differential carbonation in the product.
2. (Withdrawn) A product according to Claim 1, wherein a carbonation reducing sealer is applied to substantially all surfaces of the product.
3. (Withdrawn) A product according to Claim 1, wherein the carbonation reducing sealer applied to at least one of said first and second major surfaces is a radiation curable sealer.
4. (Canceled)
5. (Withdrawn) A product according to Claim 1, wherein the sealer applied to at least one of said first and second major surfaces is thermally, air or chemically curable.
6. (Withdrawn) A product according to Claim 1, wherein the sealer applied to at least one of said first and second major surfaces is composed substantially of a formulation selected from the group comprising: acrylics; epoxy acrylates, and urethane acrylate sealers.
7. (Withdrawn) A product according to Claim 1, wherein the sealer applied to at least one of said first and second major surfaces includes an integral adhesion promoting formulation.
8. (Canceled)
9. (Canceled)
10. (Withdrawn) A product according to Claim 1, wherein the sealer applied to at least one of said first and second major surfaces includes an adhesive formulation adapted to enhance bonding of a topcoat.
11. (Withdrawn) A product according to Claim 1, wherein the sealer applied to at least one of said first and second major surfaces is covered by a separate keycoat adapted to enhance bonding of a topcoat.
12. (Canceled)

13. (Withdrawn) A product according to Claim 1, wherein the sealer applied to each of the major surfaces is between 15 microns and around 80 microns in overall thickness.
14. (Canceled)
15. (Canceled)
16. (Canceled)
17. (Canceled)
18. (Canceled)
19. (Withdrawn) A product according to Claim 1, wherein the carbonation reducing sealer is substantially alkali resistant.
20. (Withdrawn) A product according to Claim 1, wherein the carbonation reducing sealer is sufficiently cross-linked to impede migration of carbon dioxide through the sealer to a predetermined extend.
21. (Canceled)
22. (Canceled)
23. (Withdrawn) A product according to Claim 1, wherein the sealer has a cement to silica ratio of between 0.2 and around 1.5 on a dry weight basis.
24. (Canceled)
25. (Canceled)
26. (Canceled)
27. (Canceled)
28. (Canceled)
29. (Withdrawn) A product according to Claim 1, having a porosity of between 30% and around 60%.
30. (Canceled)
31. (Withdrawn) A product according to Claim 1, having a relative density of between 0.5 and around 2.0
32. (Canceled)
33. (Canceled)
34. (Canceled)

35. (Withdrawn) A product according to Claim 1, being a fibre reinforced cement sheet product configured by use as an exterior cladding panel.

36. (Canceled)

37. (Withdrawn) A product according to Claim 35, wherein the first major surface of the sheet product is a mounting surface adapted for inward orientation toward a substrate and the second major surface of the sheet product is an exposed surface adapted for outward orientation.

38. (Withdrawn) A method of manufacturing a durable fibre reinforced cement product, said method comprising steps of:

mixing a web fibre reinforced cement formulation;

forming from said formulation a green product defining first and second generally opposing major surfaces;

curing the green product to form a cured product; and

applying a carbonation reducing sealer to said first and second major surfaces, so as to reduce propensity for differential carbonation in the product.

39. (Canceled)

40. (Withdrawn) A method according to Claim 38, wherein the carbonation reducing sealer applied to at least one of said first and second major surfaces is a radiation curable sealer.

41. (Canceled)

42. (Canceled)

43. (Withdrawn) A method according to Claim 38 wherein the sealer applied to at least one of said first and second major surfaces is selected from the group comprising: acrylics; epoxy, acrylates, and urethane acrylate sealers.

44. (Withdrawn) A method according to Claim 38, wherein the sealer applied to at least one of said first and second major surfaces includes an integral adhesion promoting composition.

45. (Canceled)

46. (Canceled)

47. (Withdrawn) A method according to Claim 38, wherein the curing step is performed using a process selected from the group comprising: autoclave, air and steam curing.

48. (Withdrawn) A method according Claim 38, wherein the product is a sheet product configured for use as an exterior cladding panel.

49. (Canceled)
50. (Withdrawn) A method according to Claim 50, wherein the first major surface of the sheet product is a mounting surface adapted for inward orientation toward a substrate and the second major surface of the sheet product is an exposed surface adapted for outward orientation.
51. (Withdrawn) A method according to Claim 50, wherein the substrate is a supporting frame.
52. (Withdrawn) A method according to Claim 38, wherein one or more of the chemical composition of the formulation, method of manufacture, and physical structure of the cured product, are selected to reduce propensity for carbonation in the product.
53. (Withdrawn) A method according to Claim 52, including the further step of compressing said green product prior to curing in a controlled manner such that the cured product exhibits a reduced carbonation gradient.
54. (Withdrawn) A method according to Claim 50, wherein the cured product has a porosity of between 30% and around 60%.
55. (Canceled)
56. (Withdrawn) A method according to Claim 50, wherein the cured product has a relative density of between 0.5 and around 2.0.
57. (Canceled)
58. (Withdrawn) A method according to Claim 50, wherein said wet fibre reinforced cement formulation has a cement to silica ratio of between 0.2 and around 1.5 on a dry weight basis.
59. (Canceled)
60. (Canceled)
61. (Canceled)
62. (Canceled)
63. (Canceled)
64. (Canceled)
65. (Currently Amended) A method according to Claim 38, wherein the carbonation reducing sealer is applied to at least one of the major surface is cured in multiple stages.

66. (Withdrawn) A method according to claim 69, including the further step of applying a keycoat over the sealer following partial curing and prior to full curing, to enhance bonding between the sealer and the keycoat.

67. (Withdrawn) A method according to claim 69 or claim 70, including the further step of applying a topcoat over the sealer following partial curing and prior to full curing, to enhance bonding between the sealer and the topcoat.

72. (Withdrawn) An engineered fibre reinforced cement product including a first major surface with a reduced propensity to differential carbonation, wherein the product has a cement to silica ratio of between 0.29 and around 0.51 and a porosity of between 25% and around 45%.

73. (Withdrawn) A product according to claim 72, including a major surface to which a carbonation reducing sealer is applied.

74. (Withdrawn) A product according to claim 73, wherein a carbonation reducing sealer is applied to substantially all surfaces of the product.

75. (Withdrawn) A product according to claim 73 or claim 74, wherein the carbonation reducing sealer is a radiation curable sealer.

76. (New) An engineered fibre reinforced cement product including a first major surface to which a carbonation reducing sealer is applied and a second generally opposing major surface to which the carbonation reducing sealer is applied, so as to reduce propensity for differential carbonation in the product, wherein the carbonation reducing sealer applied to each of the major surfaces is at least 15 microns in overall thickness.

77. (New) The product according to claim 76, wherein the carbonation reducing sealer applied to each major surface is between 15 microns to around 50 microns in overall thickness.

78. (New) The product according to claim 76, wherein the carbonation reducing sealer is applied to substantially all surfaces of the product.

79. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is a radiation curable sealer.

80. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is curable by a form of radiation selected from the group consisting of UV, infrared, near infrared, RF, microwave, gamma, and electron beam radiation.

81. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is thermally, air or chemically curable.
82. (New) The product according to claim 76, wherein the carbonation reducing sealer is composed substantially of a formulation selected from the group consisting of acrylics epoxy acrylate, and urethane acrylate sealer.
83. (New) The product according to claim 76, wherein the carbonation reducing sealer includes an integral adhesion promoting formulation.
84. (New) The product according to claim 76, wherein the carbonation reducing sealer applied to each major surface is composed of substantially the same formulation.
85. (New) The product according to claim 76, wherein the carbonation reducing sealer applied to said first and second major surfaces are composed of substantially different formulations.
86. (New) The product according to claim 76, wherein the carbonation reducing sealer includes an adhesive formulation adapted to enhance bonding of a topcoat.
87. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is covered by a separate keycoat adapted to enhance bonding of a topcoat.
88. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is applied in multiple coats or stages.
89. (New) The product according to claim 76, wherein the carbonation reducing sealer on at least one of the major surfaces is cured in multiple stages.
90. (New) The product according to claim 76, wherein a keycoat is applied over the carbonation reducing sealer on at least one of the major surfaces following partial curing and prior to full curing, to enhance bonding between the carbonation reducing sealer and the keycoat.
91. (New) The product according to claim 76, wherein a topcoat is applied over the carbonation reducing sealer on at least one of the major surfaces following partial curing and prior to full curing, to enhance bonding between the sealer and the topcoat.
92. (New) The product according to claim 76, wherein the carbonation reducing sealer is substantially alkali resistant.

93. (New) The product according to claim 76, wherein the carbonation reducing sealer is sufficiently cross-linked to impede migration of carbon dioxide through the sealer to a predetermined extent.
94. (New) The product according to claim 76, wherein the carbonation reducing sealer is substantially flexible in a cured state.
95. (New) The product according to claim 76, wherein one or more of the sealer and physical structure of a cured product are selected to reduce propensity for carbonation in the product.
96. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a cement to silica ratio between 0.2 to around 1.5 on a dry weight basis.
97. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a cement to silica ratio between 0.3 to around 0.9 on a dry weight basis.
98. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a cement to silica ratio is between 0.3 to around 0.5 on a dry weight basis.
99. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a cement to silica ratio between 0.36 to around 0.43 on a dry weight basis.
100. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a cement to silica ratio around 0.39 on a dry weight basis.
101. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a porosity of between 30% to around 40%.
102. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a porosity of between 30% to around 60%.
103. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a porosity of between 35% to around 45%.
104. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a relative density of between 0.5 to around 2.0
105. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product has a relative density of between 0.8 to around 1.9.
106. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product is formed using a Hatschek process.

107. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product is formed by extrusion.
108. (New) The product according to claim 76, wherein the engineered fibre reinforced cement product is a sheet configured for use as an exterior cladding panel.
109. (New) The product according to claim 108, wherein the sheet is substantially rectangular in shape and wherein the carbonation reducing sealer is applied to all sides.
110. (New) The product according to claim 108, wherein a first major surface of the sheet is a mounting surface adapted for inward orientation toward a substrate and a second major surface of the sheet is an exposed surface adapted for outward orientation.
111. (New) An engineered fibre reinforced cement product including a first major surface with a reduced propensity to differential carbonation, wherein the product has a cement to silica ratio of between 0.29 to around 0.51 and a porosity of between 25% to around 45%.
112. (New) The product according to claim 144, wherein the product includes a major surface to which a carbonation reducing sealer is applied.
113. (New) The product according to claim 144, wherein a carbonation reducing sealer is applied to substantially all surfaces of the product.
114. (New) The product according to claim 146, wherein the carbonation reducing sealer is a radiation curable sealer.